Massachusetts Bay Transportation Authority

ACEC State Markets Conference

April 2018

AGENDA

- MBTA By The Numbers
- FY 2019-2023 Capital Investment Plan Update
  - Major Programs
  - Reliability
  - Modernization
  - Expansion
- FY 2018 Major Program Highlights
  - Red Line South Side Facilities
  - RL/OL Improvements Program
  - Commuter Rail Positive Train Control
- Doing Business with the MBTA
  - Awarded Contracts
  - Extra Work Order Letters
  - Streamlined Mini-Procurement Process
  - Streamlined Task Order Process
  - Capital Project Pipeline (Major Contract Awards in FY2018)
- Upcoming Professional Services Opportunities

MBTA By The Numbers

- 3000+ Revenue vehicles
- 128 Transit Stations/stops
- 137 Commuter rail stops
- 846 Miles of track
- 467 Bridges
- 21 Miles of tunnel
- 20 Maintenance shops

MBTA By The Numbers – HEAVY RAIL

Red Line

- 22 Stations
- 2 Branches
- 218 Cars

Orange Line

- 20 Stations
- 120 Cars

Blue Line

- 12 Stations
- 112 cars

MBTA By The Numbers – LIGHT RAIL

Green Line

- 66 Stations & Stops
- 4 Branches
- 206 Cars

Mattapan Trolley

- 8 Stations
- 10 Cars

MBTA By The Numbers – Bus

- 8000+ Bus stops
- 175 Bus routes
- 700+ Bus route Miles
- 1,055 Vehicles
- 9 Garages

MBTA By The Numbers – Commuter Rail

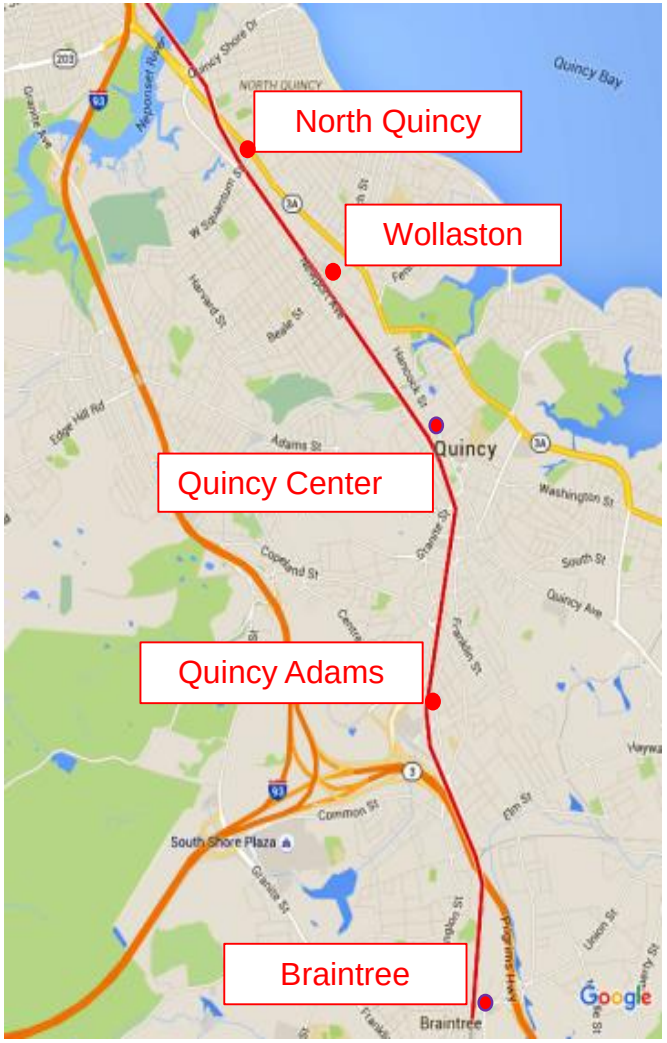
- 5 North side lines
- 7 South side lines
- 137 Stations
- 90 Locomotives
- 420 coaches
- 394 track miles
- Operated by Keolis

MBTA By The Numbers – Commuter Boat

- 7 Terminals
- 3 Routes
- 12 boats
  (3 owned by MBTA)
- Operated by Boston Harbor Cruises

FY 2018 Highlights

Red Line South Side Facilities Improvement Program



- **North Quincy Station Transit-Oriented Development**
  - Construction begins: Summer 2018
  - Garage completion: Summer 2019
- **Wollaston Station**
  - Station shutdown: January 8, 2018 – August 2019 (20 Month Closure)
  - Station opening: August 2019
  - Project completion: Winter 2020
- **Quincy Center Demo**
  - Demolition begins: End of March 2018
  - Project completion: February 2019
- **Quincy Adams/Braintree Station Garages**
  - Construction begins: Summer 2018
  - Project completion: Summer 2022
- **Quincy Adams Station Elevator Replacement**
  - Construction begins: Fall 2018
  - Project completion: December 2020

FY 2018 Highlights

Red Line/Orange Line Improvement Program

Red Line | Orange Line

Total $1,982.03M

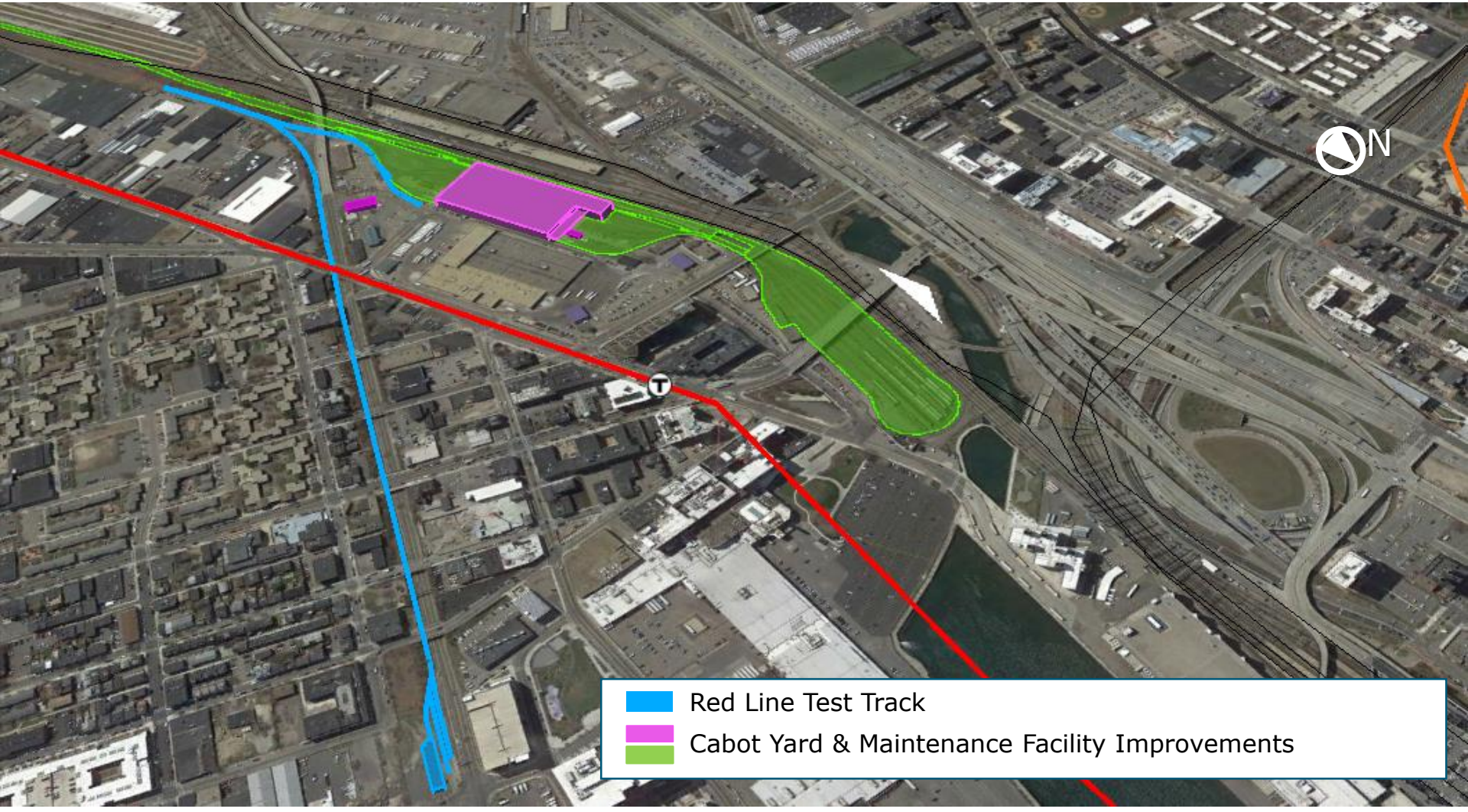
NEW VEHICLE PROCUREMENT PROGRAM	$1,009.00M
INFRASTRUCTURE IMPROVEMENTS PROGRAM	$470.36M
SIGNALS UPGRADE PROJECTS	$350.95M
STATE OF GOOD REPAIR PROJECTS	$151.72M

FY 2018 Highlights

RLOL Infrastructure Improvements Program - Orange Line Projects

FY 2018 Highlights

RLOL Infrastructure Improvements Program – Red Line Projects



FY 2018 Highlights

Commuter Rail Positive Train Control

The Rail Safety Improvement Act (RSIA) of 2008 defines a PTC System as a system designed to prevent:

- Train-To-Train Collisions
- Over Speed Derailments
- Incursions Into Established Work Zone Limits
- Movement of Trains Through Track Switches That May Have
  Been Left In the Incorrect Position

FY 2018 Highlights

Commuter Rail Positive Train Control

- Design, installation, and implementation of PTC will impact every segment of the Commuter Rail system
- Installation work will be performed on every Commuter Rail line, dispatch center, locomotive, and control car, impacting operations systemwide.

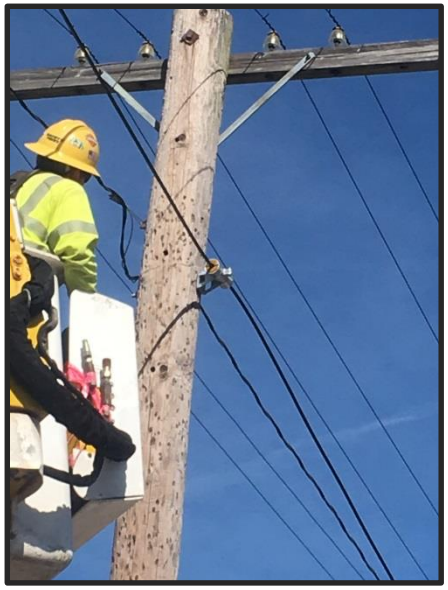
FY 2018 Highlights

Commuter Rail Positive Train Control

All PTC Systems are generally comprised of the same components:

- An On-Board Apparatus for the Locomotive controlling each applicable train
- Wayside devices, such as Wayside Interface Units (WIUs)
- A centralized dispatch system (Back Office)
- A communication system linking all components

Wood Pole Installation



Overhead F.O. Installation

Antenna Base Installation

House Installation

FY2019-FY2023

Capital Investment Plan Update

Overview: MBTA CIP Program Changes

- Proposed FY19-23 CIP is 10% larger than FY18-22 CIP
- New Project Based Programs
- Programs under Reliability, Modernization and Expansion have been renamed and resized.
- New investment programs for “megaprojects” or sets of projects linked to a common goal or outcome (e.g. GLX, RL/OL Improvements)
- Program name changes intended to provide better transparency and accountability
- Updated sizes reflect results of planning efforts, policy decisions, or other commitments (e.g. Fleet and Facilities Plan, L264 agreement)

New Project-Based Programs

The proposed FY19-23 MBTA CIP will include four new investment programs that represent large (>$500M), complex, cross-cutting projects tied to specific strategic goals or outcomes

Green Line Extension	• **Goal:** Extend the Green Line from Lechmere to College Ave • **Investments:** Stations, Infrastructure, and Vehicles
Red Line/Orange Line Improvements	• **Goal:** Replace the Red Line and Orange Line fleet and build the infrastructure necessary to meet three minute headways goals • **Investments:** Vehicles, Signals, Infrastructure
AFC 2.0	• **Goal:** Implement a new reliable and convenient fare payment and collection system, integrated across all modes, to replace Charlie Cards/Tickets and their supporting hardware and software • **Investments:** Systems Integrator, Technology, Infrastructure
Commuter Rail Safety and Resiliency (PTC)	• **Goal:** Meet and exceed federal requirements to install PTC and ATC systems while improving overall resiliency of the CR network • **Investments:** PTC Implementation, ATC Implementation, fiber installation, vegetation management

Reliability / MBTA / Bridges and Tunnels

FY2018-2022 size:

- $544.7 million over five years
- This program repairs, reconstructs and replaces MBTA commuter rail and transit bridges and tunnels system-wide.
- Maintains FY18-22 CIP Program Size

Projects

- Gloucester Draw
- Bridge Bundle Contract for six Commuter Rail bridges
- North Station Draw 1 and projects to inspect and repair bridges and tunnels system-wide

FY2019-2023 size:

- $544.7 million over five years
- $515 million underway
- $29 million available

Reliability / MBTA / Facilities

FY2018-2022 size:

- $112.6 million over five years

FY2019-2023 size:

- $388 million over five years
- $185 million underway
- $203 million available

Projects:

- Major projects currently underway are the Commuter Rail Iron Horse Operations Control Center, facility roof replacements, rail and bus lift upgrades, and upgrades to HVAC, exhaust, and fire safety systems
- Rebuild of Cabot and Wellington Yards is funded in the RL/OL Improvements program

Reliability / MBTA / Revenue vehicles

FY2018-2022 size:

- $1,703.0 million over five years

FY2019-2023 size:

- $ 1,289.9 million over five years
- $384 million underway
- $905 million available

Program purpose:

- This program rehabilitates and replaces the MBTA revenue fleet, which includes commuter rail, heavy rail, light rail, bus and ferry units.

Reliability / MBTA / Stations

FY2018-2022 size:

- $401 million over five years

FY2019-2023 size:

- $ 401 million over five years
- $350 million underway
- $51 million available

Projects:

- Major projects underway include Wollaston Station, South Shore Garages, Ruggles Station Upgrade, Harvard Busway Repairs, and parking lot paving
- Projects primarily focused on SGR; accessibility-driven projects funded in Modernization/Accessibility program
- Updating station signage, wayfinding, and other customer improvements funded in Modernization/Customer Experience and Technology program

Ruggles Station Platform Rendering

Reliability / MBTA / System upgrades

FY2018-2022 size:

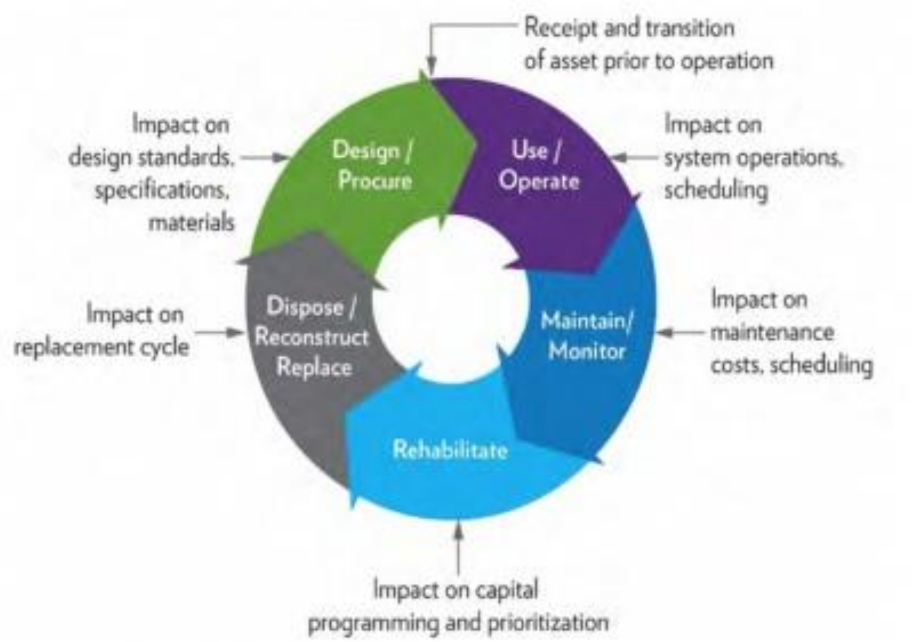
- $397.4 million over five years
- This program upgrades a wide range of MBTA systems including communications, computer technology, fare collection, asset management and environmental remediation systems. It also rehabilitates non-revenue vehicles and equipment.

Projects:

- Major projects underway are System-wide radio upgrades, Non-Revenue Vehicles, and Transit Asset Management implementation

FY2019-2023 size:

- $ 245 million over five years
- $158 million underway
- $87 million available



Reliability / MBTA / Track, signals, and power

FY2018-2022 size:

- $1,285.6 million over five years

FY2019-2023 size:

- $ 987.4 million over five years
- $676 million underway
- $312 million available

Projects:

- Major projects underway include Green Line Signal Program, North Station Signals, Orange Line Traction Power, Commuter Rail Tracks, Ties, and Switches, and various projects executed on the Northeast Corridor/Providence/Stoughton Line in partnership with Amtrak
- Major Green Line track renewal in development

Modernization / MBTA / Accessibility

FY2018-2022 size:

- $224.2 million over five years

FY2019-2023 size:

- $ 268.8 million over five years
- $159 million underway
- $110 million available

Projects:

- Major projects underway include elevator program and Symphony Station
- Accessibility projects often involve SGR improvements to stations as well

Modernization / MBTA / Risk Management and Mitigation

FY2018-2022 size:

- $538.8 million over five years (as Federal Programs and Mandates)
- This program implements risk management initiatives as well as proactive efforts to improve workplace safety and system security

FY2019-2023 size:

- $ 189 million over five years
- $124 million underway
- $65 million available

Projects:

- Major projects underway are Green Line Train Protection and systemwide security upgrades
- PTC now a CIP Major program on its own

Modernization / MBTA / Process Improvements and Innovation

FY2018-2022 size:

- $0.0 million over five years (part of $622M System Improvements)

FY2019-2023 size:

- $ 15 million over five years
- $5 million underway
- $10 million available

Projects:

- Major projects underway are Green Line LEAN study, Commuter Rail vision, PMIS eBuilder implementation

Modernization / MBTA / Customer Experience and Technology

FY2018-2022 size:

- $0.0 million over five years (part of $622M System Improvements)

Projects:

- Major projects underway are Park Street Wayfinding, T Digital Service, and Green Line Real Time Tracking.
- This program will be primarily funded with Pay-Go/Lockbox

FY2019-2023 size:

- $ 124 million over five years
- $18 million underway
- $106 million available

Modernization / MBTA / AFC 2.0

FY2018-2022 size:

- $0.0 million over five years (part of $622M System Improvements)

- The AFC 2.0 program will implement a new reliable and convenient fare payment and collection system, integrated across all modes, to replace CharlieCards/Tickets and their supporting hardware and software.

- Total investment in $407 million over life of the project; program size reflects MBTA payments within the five-year CIP window

FY2019-2023 size:

- $168 million over five years
- $168 million underway

Modernization / MBTA / Red Line/Orange Line Improvements

FY2018-2022 size:

- $0.0 million over five years (part of multiple programs)

- The Red Line and Orange Line Improvements program includes the set of vehicle and infrastructure investments needed to fully modernize the fleet and achieve the service goal of three minute headways

Includes:

- Red Line/Orange Line vehicle procurements previously in Revenue Vehicles program, Red Line Signals previously in Track, Signals, and Power program, and Cabot and Wellington Yard rebuild, previously in the System Improvements program

FY2019-2023 size:

- $ 1.477 billion over five years
- $1.413 billion underway
- $64 million available

Modernization / MBTA / Commuter Rail Safety and Resiliency (PTC)

FY2018-2022 size:

- $0.0 million over five years (part of $538.8M Federal Programs and Mandates)
- This program includes projects that improve the safety and resiliency of the Commuter Rail network, including the implementation of Positive Train Control.

Components:

- Includes PTC Implementation from former Federal Programs and Mandates program, ATC implementation (new for FY19-23), tree trimming, and fiber installation (new for FY19-23).

FY2019-2023 size:

- $ 657.5 million over five years
- $344 million underway
- $314 million available

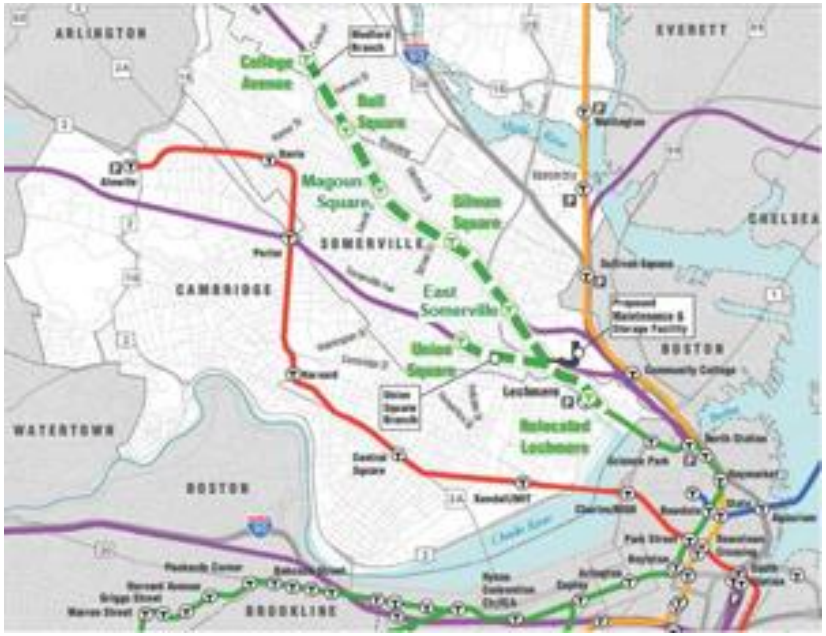
Expansion / MBTA / Green Line Extension

FY2018-2022 size:

- $1,587.0 million over five years
- The Green Line Extension program includes the vehicles, stations and infrastructure to extend the Green Line from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and College Avenue in Medford
- Program size reflects funding sources for GLX.

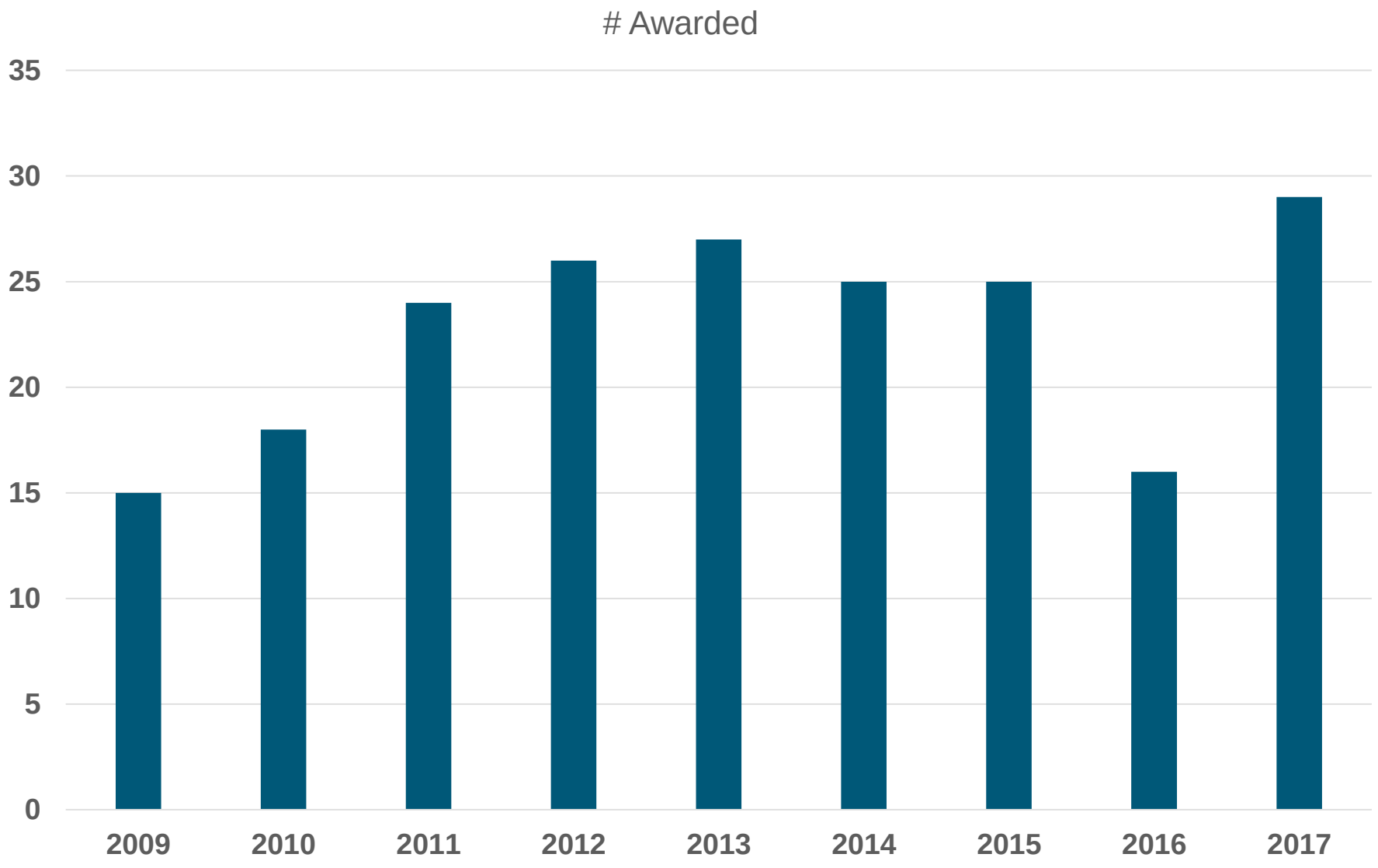
FY2019-2023 size:

- $1,364.5 million over five years
- $1.227 billion underway
- $137 million available

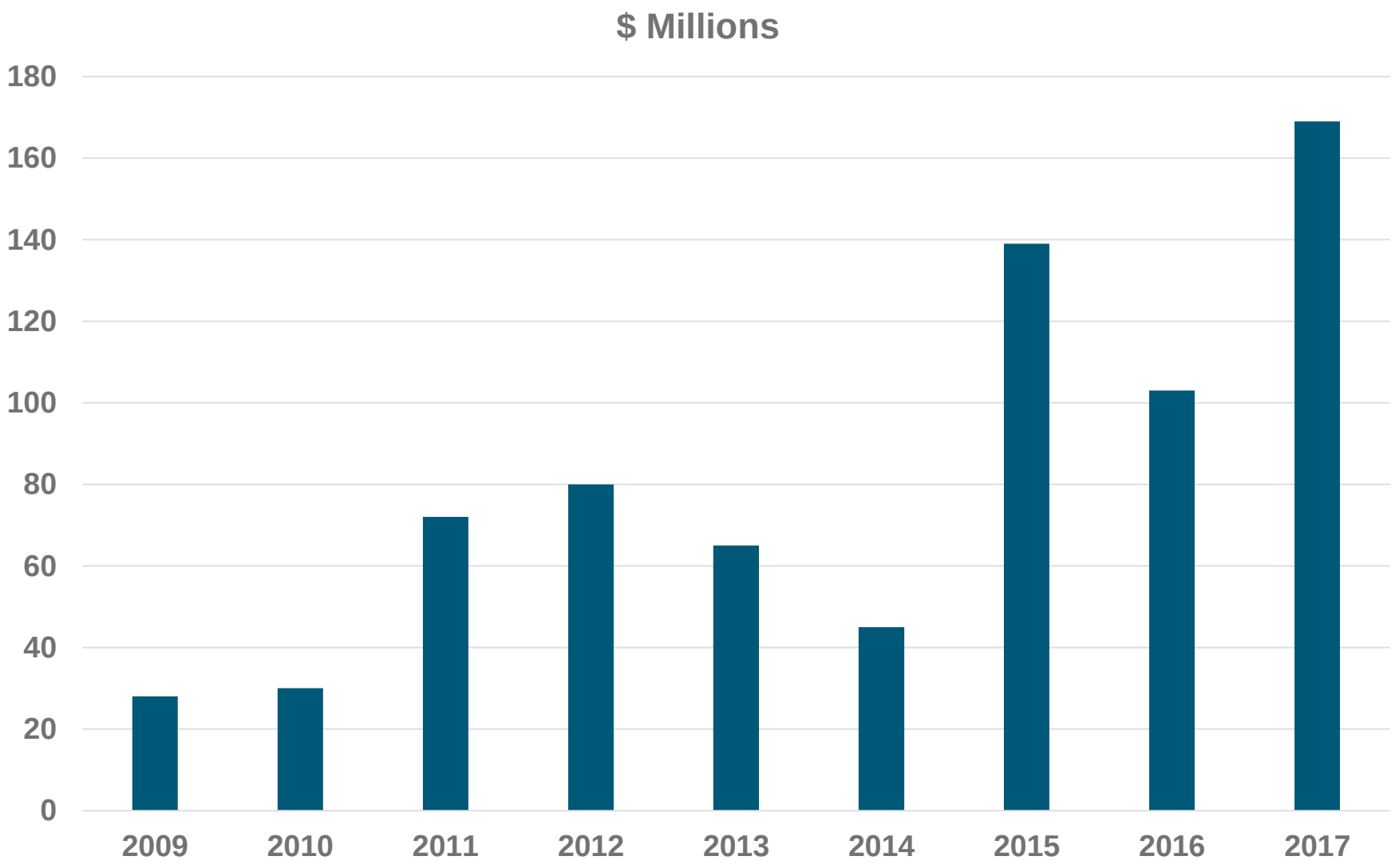


Doing Business with the MBTA

Awarded Professional Services Contracts



Value of Professional Services Contracts



Streamlined Mini Procurements

- A process to engage consultant services under existing GEC contracts when the value of services is estimated to be over $1M
- Consultants must have sufficient contract capacity to receive a Request for Letters of Interest.
- Letters of Interest generally limited to 6 pages
- May or may not include interviews

Evaluation Criteria	
Personnel Qualifications	35%
Relevant Project Experience	30%
Special Project Expertise	15%
Ability to Deliver Services	10%
Overall Evaluation	10%

- ***GOAL:***

  Issue a Notice to Proceed to selected consultant within three months of issuing Requests for Letter of Interest.

Extra Work Order Letter (EWOL)

- Structured for rapid engagement of consultant
- Goal is to authorize start of work within 3 business days of receipt of consultant proposal for full scope of services.
- Authorizes up to 90 days of work for emergency or time sensitive professional services while associated Task Order or Amendment is processed and approved.

LEAN Task Order Process

- New simplified process structured to support three approval tracks
    - Task Order execution time to be reduced from 9 months to 3 months
- Scope definition standards have been established
    - Improves quality
    - Reduces rework
- Standardized internal support resources and tools
    - Checklists
    - SOPs
    - Form templates

Upcoming Professional Services Opportunities

Project	Value	Date
Engineering Consulting & Program Management Services for Procurement of New Revenue Fleet Buses	TBD	Apr-18
Longfellow Approach and Charles/MGH Station Upgrades	$4,300,000	Apr-18
General Engineering Consultant (GEC) Services	TBD	Apr-18
Green Line Tunnel Interlocking Signal Design	$6,713,820	Apr-18
Blue Line Signal System State of Good Repair Improvements	$1,106,604	Apr-18
Bridge Inspection & Ratings	$5,000,000	Apr-18
Construction Management & Construction Phase Support (CM/CPS) Services	$5,000,000	Apr-18
Vertical Transportation & GEC Services	TBD	May-18
Downtown Crossing Phase II Vertical Transportation	TBD	May-18

Upcoming Professional Services Opportunities

Project	Value	Date
Lynn Garage Improvements Design and Construction Phase Services	TBD	May-18
Symphony Station Final Design and CPS	TBD	May-18
Underground Stations & Geotechnical GEC	TBD	May-18
Bridges GEC	$5,000,000	May-18
Owner's Representative GEC	$3,000,000	Jun-18
Tunnel Inspection GEC Services	$5,000,000	Aug-18
Winchester Station Final Design and CPS	TBD	TBD
Stations/Facilities Accessibility Improvements GEC	$5,000,000	TBD
Infrastructure/ ROW Transit & Commuter Rail GEC	$5,000,000	TBD

Capital Project Pipeline

- Major Contract Awards in FY2018

Project Name (✓ = Awarded this year)	Engineer's Estimate ($M)
Revenue Vehicles	
Green Line Type 10 (Design)	TBD
Track, Signal, & Power	
Reservoir to Riverside Signal and Track Improvements	$70M
✓ Commuter Rail Tracks, Ties, Switches (On-Call)	$24
Transit Track and Tie Replacement (On-Call)	$25
Franklin Double Track	$25
✓ Red Line Test Track	$21
✓ Commuter Rail Right of Way Improvements (On-Call)	$17
Power Improvements (On-Call)	$20
Systemwide Transformers Phase 2	$20
Orange Line Direct Fixation	$15
Green Line Grade Crossings	$15
SCADA System Upgrades	$5
Bridge & Tunnel	
Bridge Bundle D/B	$102
✓ Gloucester Drawbridge Replacement	$57
Orange Line Tunnel Repairs	$25
Tunnel Repairs (On-Call)	$15
Bridge Repairs	$10
Capacity & System Improvements	
✓ AFC 2.0 Systems Integrator	TBD
Red / Orange Line Signal Upgrades D/B	$185
✓ Wellington Yard Rebuild	$103
Cabot Yard & Maintenance Facility Improvements	$216

Project Name (✓ = Awarded this year)	Engineer's Estimate ($M)
Stations	
✓ South Shore Garages	$64M
✓ Parking & Paving (On-Call)	$22
Harvard Busway	$15
✓ Fenway Portal	$8
Sullivan Sq Improvements	$5
Back Bay Ventilation, Package 1	$5
Knowledge Corridor Canopies	$3
Facilities	
Roofing Repairs (On-Call)	$17
Iron Horse Park Operations Control Center	$28
Facility Improvements (On-Call)	$25
Accessibility	
Quincy Adams Elevators	$8
Bus Stop Accessibility Improvements	$5
~~Park Street Elevator~~	~~$3~~
Federal Programs / Mandates	
Green Line Train Protection	TBD
System Upgrades / Other	
Expansion	
✓ Green Line Extension Design / Build	$1,080
Chelsea Commuter Rail Station (Silver Line Gateway)	$22
TOTAL	**$2,277M**

Questions?